

**ABSTRACT OF THE DISCLOSURE**

A computer implemented method for development profile simulation in accordance with an embodiment of the present invention includes calculating optical intensities in a photosensitive resist, calculating a spatial average value of the optical intensities, reading a measured changing ratio of a dissolution rate of the photosensitive resist relating to an alkaline concentration changed by at least one of exposure dose on the photosensitive resist, a position in the thickness direction of the photosensitive resist and an alkaline concentration of developer for the photosensitive resist, obtaining a calculated dissolution rate by using the spatial average value and the measured changing ratio, and predicting a pattern shape of the photosensitive resist from the calculated dissolution rate.

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